Wisconsin Proposed Use Cases

August 14, 2006

Wisconsin Proposed Use Cases[1]	**AHIC Harmonized Use Case**	**How stakeholders will use** (Quality improvement, clinical care, quality reporting, etc.)	**Technical considerations**
1. Result and document delivery A single Regional Delivery System (RDS) for point-to-point transmission of results and reports (e.g., labs, imaging, etc.) between service providers and clinical providers. For example, when a patient's laboratory results are completed the laboratory (service provider) sends results to the ordering physician (clinical provider) using the regional delivery system. Similarly, a specialist would use the same system to send consultation results to the referring clinician. Replaces multiple directories and delivery systems with a single system. Low-tech users can still receive information by fax, but availability of electronic text delivery can greatly reduce costs for providers with EMRs. So long as system only routes documents (rather than assembling databases of patients or results) it creates few if any new legal, privacy, confidentiality or data use issues. As standards for documents (eg CDA) and vocabulary (eg LOINC, SNOMED) are adopted, senders can begin sending machine-readable standardized documents for use in EMR and decision support systems. System adoption simply requires users to identify the RDS as their preferred address. They inform the RDS how they desire results delivered (fax, secure email, etc.). Delivery options can be made sensitive to stat results and after-hours/vacation options, etc. If patients are included in the user pool they to may can also receive results as directed by the clinician.	1. Laboratory Results Reporting use case	COST: Lower transaction costs (eliminate redundant directory maintenance; e-documents permitting cut-and-paste or machine-reading into EMRs). QUALITY: Higher speed of delivery. Receipt acknowledgment enabled. COLLABORATION: Enhances clinician collaboration (linking clinicians with a single directory and secure document delivery). SETS STAGE for higher levels of data interoperability and patient-centric information summaries.	LOW LEVEL OF ENTRY: fax and printer owners can receive documents USER IDENTITY MANAGEMENT: Requires standardized file (directory) of all users (senders and receivers), and authentication for receipt of confidential documents. DOES NOT require Master Patient Index or standardized data. When results and documents are standardized they can be utilized by automated programs upon receipt (eg., incorporation into medical record or decision support systems, but this is not necessary. The use of a single regional delivery system can greatly reduce the number of interfaces needed to import data into EMRs and other applications.

[1] Arrows indicate subsequent use case development that is at least partially dependent on prior use case development.

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1a. Public Health Electronic Lab Reporting (Mandated) Public health agencies list RDS as method for sending mandated laboratory reporting (e.g., positive TB culture). [In some regions, e.g, Indianapolis, by agreement the RDS "opens" mail to determine which results are reportable to PH.]	3. Biosurveillance use case	PUBLIC HEALTH: Faster, more complete reporting of mandated laboratory reports.	PH can select fax, email , website or standardized electronic messaging (when available) depending on their technical capabilities.
1.a.1. Public Health Lab Decision Support Alerts PH will know when a clinician receives reportable disease report, and has easy method of sending guidance to that clinician using the RDS		PUBLIC HEALTH: Improved timely advice for clinicians. PH COSTs: Reduced cost for PH-clinician communications. Reduced cost of report processing. COLLABORATION: Improved communication between PH and clinical professionals	Sending relevant information (e.g., "what to do with a patient with positive TB speciment") to clinician using RDS is easy as sending email.
1.b. Result and document look-up (patient-centric data summary) When regional exchange has completed necessary agreements and technical implementation of a patient record locator a patient-centric summary of results can be created. RDS has laid groundwork by establishing user identity management and secure communications system. It can futher accelerate movement in many ways when authority is granted to do so: tracking the flow of patient records to populate patient record		COST: Avoid redundant tests and procedures. Greater clinician productivity QUALITY, SAFETY: Provider decisions can be based on more complete information	This step requires creation of Master Patient Index/Record Locator and a much higher degree of information standardization to create summaries.

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locator; funneling most information transaction through a single point enables centralized standardization of data. **1.b.1. "Original record" content (e.g., clinical records, test interpretations) linked to patient summaries for look-up** Documents like radiologic interpretations, discharge summaries, and clinic notes are conveniently mounted for retrieval by users of patient-centric summaries to provide more detailed information when needed.		QUALITY and COST: quality of claims and other information types may not always be adequate for health care use. Users can validate summary information (e.g., "Was that diagnosis 'breast cancer' or 'rule out breast cancer'"?)	Provides system for finding data quality problems. How would editing or updating a patient's information occur?
1. c. Image delivery and/or look-up Add on-line receipt or review of radiologic (PACS) or other images (ECGs, EEGs, etc)		COST: Enables telemedicine; reduces need for on-site specialists, film transport. QUALITY and COST: Enables side-by-side comparision of studies performed at different locations or times (e.g.,"has this mass increased in size")	Considerably greater memory and bandwidth requirements for PACS.

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2a. Registration and claims record repository Claims information can indicate when, where and for what diagnoses visits and procedures occur, but data is often not available for weeks or months, Information from registration systems can provide similar information more rapidly, as well as validating a user as someone physically caring for a patient. Both types of data can be assembled into a patient-centric historical summary of care provided.			Master person index (MPI) is required.
2.a.1.Registration-driven authorization for look-up functions Proposed flow is that registration information is sent by users **as part of the process of being authorized** to view patient data during a visit.		A registration message helps affirm that users are requesting information because they are providing care to the patient (one HIPAA criterion for information sharing).	Apart from providing an authentication function for clinicians, also helps populate Master Patient Index/Record Locator functions.
2.a.2.Look-up prior visits/diagnoses		QUALITY, COST, COLLABORATION, SAFETY: Clinicians view summary of prior care and identify diagnoses of concern and can avoid redundant procedures. Can request further information from other providers (using RDS mail)	Data quality is an issue- see use case 1.b.1.
2.a.2.a.Public health chief complaint (CC)	3. Biosurveillance use case	PUBLIC HEALTH: cumulative, deidentified data	Creation of aggregate data views and either human

[2] PH Decision Support Alerts: envisions possible transmission of a public health message to a provider (possibly later to patients) related to a patient with a particular laboratory result (e.g., lead level, syphilis test); chief complaint; or demographics/past diagnoses (e.g., asthma). A suggestion was to Delete the medication alert because the medication list as currently envisioned is historical, not real-time (as opposed to an e-prescribing system) and alerts based on historical data may be both repetitive and irrelevant.

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surveillance		can show changes in presenting symptoms, test ordering, and other information useful for outbreak detection (syndromic surveillance) and emergency health care resource management (situational awareness)	visualization/analysis or algorhythmic analysis by either regional exchange and/or public health authority
2.a.2.b.Public Health Chief Complaint-driven Decision Support Alerts[2] Upon registration with a particular chief complaint the regional exchange returns text to the registering site containing advice from public health authorities. For example, during a pertussis outbreak, an advice message might be sent for patients reporting "cough" as part of the chief complaint informing which criteria might be used to select patients for pertussis testing.		PUBLIC HEALTH, QUALITY, SAFETY, COST: Some epidemiologic data can improve the accuracy of diagnosis and the precision and effectiveness of treatment, particularly during epidemics or outbreaks	Requires recognition of chief complaints of interest in the registration message and automatically replying to the registration message with an alert tailored to the chief complaint.
2.a.2.c Public health demographic Decision Support Alerts Some demographic groups may benefit from alerts to providers given during episodes of care, for example, advice to vaccinate elderly patients during the seasonal influenza vaccination program		QUALITY, PUBLIC HEALTH: Particularly when resources are limited and recommendations are changing (e.g., during influenza vaccine shortages) appropriate care is promoted among the targeted groups	Avoid alert "fatigue". Other issues like 2.a.2.b., above.
2.a.2.d. Public health resource utilization surveillance Particularly during disasters and outbreaks, public health	3. Biosurveillance use case	PUBLIC HEALTH: Track and respond to consumption of health resources (e.g.,	Creation of aggregate data views and either human visualization or algorhythmic

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agencies could use near-real-time aggregate registration information to assess the capacity and surge demand needs for health care resources.		emergency room beds or ICU beds) in disasters or outbreaks,	analysis by either regional exchange and/or public health authority
2b. Patient Health Record registration module Enable patients to electronically enter, update, correct, and add typical registration information for use by providers. Replaces the clipboards that force patients to repeat information every time they are seen in a new location. **2.b.1Patient-entered data improves registration process** Electronic patient health record registration dataset could improve reduce transcription error, recall fatigue and otherwise improve speed and accuracy of registration for health care providers. **2.b.2.Advance directives viewable** Patients enabled to mount advance directive documents in their Personal Health Record. Can be uploaded as needed	2. Consumer Empowerment (registration and medication history) use case	PATIENT SATISFACTION: less time repeating data recall and recording. QUALITY and SAFETY: reduced patient recall fatigue and transcription error COST: reduce registration labor costs and data quality problems QUALITY and COST: Improved likelihood that advanced directives available to	AHIC use case envisions patients using third-party standardized Patient Health Records (PHRs), National standards to enhance ease of data incorporation into clinical registration systems. Not clear if these will be internet tools, portable tools or both. Many patients may not have inclination or skill to enter data electronically. Data security for patient-created data Data quality may need validation Version control may be an issue.
2c. Medication-Allergy-Immunization record A patient-centered summary of dispensed prescribed medications, allergies and immunizations is available for review or uploading by clinicians and patients (using their PHRs).	2. Consumer Empowerment (registration and medication history) use case proposes a medication history is assembled and viewable by providers and also by patients	QUALITY and SAFETY: medication list helps prevent drug-drug and drug-allergy adverse events, redundant medications, missed immunizations	Requires Master Patient Index/Record Locator. Data gathered from dispensing records of pharmacies, possibly via the intermediatry of PBMs or

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2.c.1Clinician look-up or download **2.c.1.aAllergy/interaction decision support** Clinical decision support automatically alerts to allergy-drug interactions **2.c.1.b.Patient adherence decision support** Comparison of prescribed with dispensed medications **2.c.1.c.Formulary decision support** Clinician alerted to out-of-formulary prescriptions **2.c.1.d. Evidence-based medicine (EBM) guidelines decision support** **2.c.2Added to Patient Health Record** **2.c.2.a Future patient decision support** **2.c.2.b.Patient annotation of medical-allergy-immunization record**	in the PHR	QUALITY and COST: Detect failure to adhere to prescribed regimen QUALITY and COST: Clinician directed to meds selected by P&T committees QUALITY and COST: Clinician alerted to improved management strategies QUALITY, SAFETY, COST Patient and clinician share common list of medications SAFETY, COST: Patient benefits from tailored alerts and reminders SAFETY: Patients bring record errors or omissions to clinical attention	claims information, immunization registries. Source of allergy data unclear Machine readable data standardization required Requires standardization of both prescribed and dispensed medication data How long is data to be stored in the system? How long is data going to be available for display in the system? Will there be the option for recalling historical data? Will the amount of data affect how long it takes to retrieve information?
2d. Harmonization of Wisconsin Immunization Registry		See 2.c.	Harmonization or interface

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(WIR)-Regional Early Childhood Immunization Network (RECIN)[3] **data and function –** The WIR and RECIN currently both collect immunization data. This use case describes a method for harmonizing these two data sets. This could be accomplished through the merging of the two data sets or linking to both data sets as inputs.			needed to ensure all immunizations are integrated into 2.c.
(Above-mentioned surveillance of mandated laboratory reports, chief complaints and health care resource utilization)	3. Biosurveillance use case	Clinical care, quality improvement, surveillance, public health	

[3] Regional Childhood Immunization Network (RECIN) is a computer program at Marshfield Clinic that shares immunization information with many doctors' offices, public health departments, and schools. More information can be found at http://www.recin.org/.